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ABSTRACT

The purpose of this booklet is to show the role and importance of work-oriented literacy for development, that it is a way of training to adapt techno-vocational and socioeconomic requirements of development. Work-oriented literacy is geared to the felt needs and interests of selected vocational groups--farmers, factory workers, small traders, drivers, etc. This concept teaches literacy abilities (reading, writing, and arithmetic), technical knowledge, vocational skills, and related socioeconomic subjects and problems to be solved. Such a program should be more attractive and useful to adult learners and lead to improved working efficiency and productivity and attitude changes. This booklet also indicates how existing training activities can be enriched or new ones organized without placing too heavy a burden on sponsors, organizers, and learners. In a broader sense, it suggests that literacy campaigns should be integrated with development programs, in most of which farmers and workers play an important role. All means and resources should be employed--functional mass literacy campaigns and selective work-oriented literacy--if illiteracy and ignorance are to be eradicated. (Author)

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A METHOD OF VOCATIONAL TRAINING FOR FARMERS - WORKERS

BY

AMIR H. NASUTION

I. A. A. E.

Institute of African Adult Education
University of Ibadan
Nigeria

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FUNCTIONAL - LITERACY

A Method Of Vocational Training For Farmers-Workers

INTERNATIONAL LITERACY DAY

1972

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AMIR H. NASUTION

UNESCO ADULT LITERACY EXPERT

Institute of African Adult Education
University of Ibadan
Nigeria.

International
Literacy Day Series

Voices of the World IAAE 1970

Government and People's Voices
IAAE 1971

Functional Literacy - Why and
How IAAE 1971

A method of training for far-
mers and workers IAAE 1972

by

A. H. Nasution

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p.25 traditional literacy is "content-empty" or themselves	themeless
p.26 literacy Primers, which should fulfill	literacy Primers should fulfill
p.63 Lamco (a copper mining company	Lamco (an iron ore mining company).

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INTRODUCTION

One of the main crises in school-education is caused by the in-suitability or non-functionality of the instruction given to children. There is a general complaint, for instance that primary school pupils are estranged from their society, are not prepared at all for any practical activity in their after-school life. It is thought that this situation can be improved by the provision of functional education, for instance by the introduction of a revised or new curriculum and suitable text books.

In the field of out-of-school education similar crisis has been observed, particularly in the teaching of literacy to adults. It has been admitted, for instance that the mass traditional literacy concept, applied for decades, is not so useful, not to say meaningless. It does not serve the adults in their daily life. It

has ended in more failures than successes, and has brought about wastage of time and resources. It has, therefore, been adopted universally, for the first time by the World Congress of Education Ministers and International Organizations in Teheran in 1965, that this traditional literacy should be transformed into functional literacy, which meets the felt needs, real interest of the adult learners, either their political, socio-cultural or socio-economic interest. In the latter case literacy should serve as a factor in development.

Work-oriented literacy has been propagated, planned and experimented by UNESCO and its member-states in the frame-work of the Experimental World Literacy Programme, since 1966. This literacy education is geared to the felt needs and interest of selected vocational groups, farmers, factory workers, small traders, drivers

etc. It teaches literacy abilities (reading, writing and arithmetic), technical knowledge, vocational skills and related socio-economic subjects and problems to be solved. It is then assumed that it will be more attractive and useful to the adult learners; that it leads to improved working efficiency and increased productivity, and change of attitudes.

This booklet is the fourth in the International Literacy Celebration series. It is hoped that it can show the role and importance of mentioned work-oriented literacy for development; that it is a way of training to adopt techno-vocational and socio-economic requirements of development. It tries also to indicate how existing training activities can be enriched, and or new ones organized without too a heavy burden to sponsors, organizers and learners, presented in simple terms for the sake of

clarity and practicability. In broader sense, it suggests that literacy campaigns be integrated with development programmes, in most of which farmers and workers play an important role.

It is, however, to be kept in mind that for the total eradication of illiteracy and ignorance, all means and resources should be employed, functional mass literacy campaigns and selective work-oriented literacy must go hand in hand, and support each other.

Accelerated development is a must for less-developed countries. It is clear that to support this, functional education i.e. functional literacy becomes an imperative.

Literacy Day celebration is for rethinking and a c t i o n.

Amir H. Nasution.

THE VICES OF ILLITERACY

It is needless to explain that illiteracy hampers development. Illiterate here means not knowing reading, writing and arithmetic in the officially recognized script in the state. Illiterate people are kept not only outside the written world of knowledge and experience but are also "blind" to change and new requirements of their daily life, the changing world around them in general. It makes them also more resistant to change, new ideas and application of new techniques.

It has been proved by experience and studies or surveys that illiteracy is one of the principal causes of ignorance, diseases and poverty, and ..... under-development. It has been found out that it correlates with national income. A low per capita income is prevailing in countries with a large illit-

erate population; that a real take-off for development requires about 35% literacy. It has also been experienced that due to ignorance and resistance to change and new techniques of the citizens concerned, projects in health, agriculture etc. meet difficulties or delays, in some cases failures. It is known, for example that by sticking to traditional and inherited customs and practices, and or strong belief in superstitions, illiterate farmers reject the introduction of new farming cycles or application of recommended fertilizers etc.; that illiterate village people do not believe in medical doctor's advices and practices, object to injections, hospitalization etc. which they and their witch-doctors regard as taboo.

Illiteracy among workers in factories and other industrial enterprises causes not only low productivity

but in a number of cases, also waste of instruments and materials, and a high occurrence of accidents. Also misunderstanding or conflicts between workers and their trade unions, and or their employers. A study of workers attitudes in a factory in Jos, Nigeria, for instance has given the following conclusion : 1)

> "The major problem of the Fibre Factory worker was the problem of low morale. Irregularity of attendance, absenteeism, unpunctuality, accident proneness, hostility to reasonable request and suspicion of management might be traced to low morale in the worker..... Here lay the problem of communication which might be important to the creation of low morale. Management could not effectively communicate with the workers.
>
> Low level of skill made the promotion rate very slow. Many workers were ambitious and aspired higher level of skill more than they knew they had the ability to achieve. The vicious circle of low level

> of skill making for low promotion rate, resulting in low morale might be broken by a programme of functional literacy ... would lead to better mutual understanding, better appreciation of industrial needs and better participation on the part of the workers in the industrial enterprise of the company, and also to higher level of skill in the workers economic activities."

Illiteracy victimizes farmers and workers in improvement of their income and promotion, their conditions of life in general, including health conditions, and maybe their happiness. Of course, it cannot be denied that illiterate farmers who have been farming for years, can make some improvement through experience, by trial and error method. At the same time it can not be refuted that their yields and conditions of living can hardly be improved as long as they use the traditional and inherited methods,

techniques and tools. Progress through word by mouth is very limited.

Workers in factories and other industrial enterprises, usually, suffer more of their illiteracy because organised enterprises have set certain standards for wage increase and promotions are determined by certain trade tests. Again, it can not be denied that one of the lowest levels of trade can be reached by the illiterates through long experience or on the job-training, particularly if the trade test does not require literacy abilities. But this opportunity is very limited, and the chance very minimum. In this case illiterate workers may be frustrated, become discontented, and may blame their trade union or their employer of their ill-fate. If possible, employers, understandably, prefer to employ literates over illiterates.

Illiteracy has also an adverse effect on investment. Investors, particularly foreign investors are scared of illiteracy, of investing in countries where the labour force is still suffering from the frightening disease which can contaminate production, may bring about losses or damage to capital and equipment. But realizing that the disease or evil cannot be eliminated soon while investment must start, financiers, bankers and economists resolved at their conference in February 1969 [2]:

> "In the preparation of new development projects as in the reappraising of existing production activities, the importance of work-oriented literacy for short and long-term efficiency should always be considered. Thus, functional literacy training should appropriately constitute an integral part of the planning and implementation process."

> "The resources of modern enterprise, industrial and agricultural, as well as of banks, national, regional and international, of different types, and specialized credit agencies, should be brought to bear on training illiterate workers and farmers. Provision for financing the training involved should be part of the overall financing of the project. Thus, in projects which they are financing, development banks should see to it that the financing of functional literacy needs are taken care of. International banks and financial institutions should give serious consideration to making it a requirement that each development project has incorporated in its basic structure, where it is appropriate, the component of functional literacy, including programmes which might be called for prior to the actual launching of the project."

In the old times colonial masters, feudal rulers and landlords exploited illiteracy as a vicious instrument. For them it was more profitable to govern

illiterate people, ignorant of their political and economic rights, unmindful of timely needs for improvements in living conditions and standard, and fatalistic towards existing situation. It was therefore, not surprising that colonies when they became independent, were left behind with 80-90% illiteracy. A glaring comparison of illiteracy ratios between developed and less-developed countries, grouped into regions, is given below :[3]

Table I

Adult (15 years and older) literacy, around 1960 and 1970

Major Regions*)	Around 1960		Around 1970	
	Illiterate adults (000)	Illiteracy %	Illiterate adults (000)	Illiteracy %
Africa	124,000	81.0	143,000	73.7
Northern America	3,300	2.4	2,500	1.5
Latin America	40,000	32.5	38,600	23.6
Asia	542,000	55.2	579,000	46.8
Europe and USSR	24,500	5.3	18,700	3.6
Oceania	1,200	11.5	1,400	10.3
(Arab States)	(42, 700)	(81.1)	(49,900)	(73.0)

*) AFRICA includes the Arab States of Africa. NORTHERN AMERICA covers the United States, Canada, Bermuda, Greenland and St. Pierre and Miquelon. LATIN AMERICA covers the South American continent, Central America, Mexico and the Caribbean. ASIA includes the Arab States of Asia. EUROPE includes the USSR. OCEANIA covers Australia, New Zealand and the surrounding islands. The Arab States as a separate grouping are presented in parentheses.

It is regrettable that even in the present era of freedom and modernization, there are still leaders and groups who use illiteracy as a vicious instrument to preserve or obtain political and or economic gain. To quote statements of a Tanzanian M.P. in his key-note address to the 1971 AAEA Conference in Dar-es-salaam:[4]

> "...the educated few will form the society's "haves" and the uneducated or illiterate majority the "have-nots.
>
> ....The educated few can easily pose a serious danger to the uneducated majority in our midst.
>
> ...It remains a fact in most countries that women are still under-privileged and exploited..."

Another example, in an evaluation study on the impact of functional literacy instruction[5], the tobacco farmers have expressed that one of the advantages of their being literate, is that they can not be cheated any longer, for instance in the weight

and payment of their tobacco yield.

Literacy will reign for a long time to come.

It may be recorded that all developing countries are, to a varying degree, aware of the vices of illiteracy, particularly of the fact that illiteracy impedes the implementation of development programmes. However, in spite of all energetic efforts of national governments and their peoples, assisted by international agencies and friendly states, the number of illiterates in the world is still soaring, although the percentages are declining, as shown in Table 1 and below :

Table 2

Estimated Numbers and Percentage of Illiterate Adults (15 years and older) in the World

Year	Adult Population	Literates	Illiterates	Percentage of Illiteracy: %
1950	1,579	879	700	44.3
1960	1,869	1,134	735	39.3
1970	2,287	1,504	783	34.2

In observing those formidable figures it should, however, be remembered that a number of countries have achieved remarkable results, and or formulated gigantic programmes for the eradication of the evil. To give a few examples :

Iran could wipe out illiteracy among 500,000 citizens in one year (1968) due to her "Armies of Knowledge". Guinea had a massive programme to enrol 80% of her

entire illiterate population, and for this purpose she trained 49,400 secondary school students, 5,000 school teachers and 600 university students in 1968. Tanzania has obliged all school teachers and rural development workers, and mobilized farmers, community leaders, Party members etc.; prepared 400 inspectors and 3000 instructors for her work-oriented literacy project in 1971; decided to totally eliminate illiteracy in three districts at the end of 1971.

Nigeria which has only 2% and 20% permanent literacy in rural and urban areas respectively [6] which means 98% and 80% illiteracy, has indicated its intention to wipe out illiteracy in the coming decades within a certain period, as expressed by the Federal Minister for Education in March 1972.[7]

FARMERS AND WORKERS ROLE IN DEVELOPMENT

It is safe to say that all developing or less-developed countries are agricultural, and will remain so for decades to come. It is a fact that, as high as 70-80% of their peoples live in rural areas, and earn their living from one or two agricultural activities; that in many cases agriculture (farming, forestry, fishery, lifestock etc.) is the backbone of the economy.

Many of these countries have accorded top-priority to agriculture in their national development plans, next to industry (mining, manufacture, processing, construction etc.).

In Nigeria agriculture has been and will remain the largest employer in the economy. Its percentage shares of employment are 69.8% in 1970 and 65.5% in 1974, thus employing 16.790 million out of 24.054 million, and 17,881 million out of 27.316 million total employment.

Clearly, these facts demonstrate the significant and vital importance of farmers and workers in development. This, as explained above, makes literacy education an imperative in order that farmers and workers can live up to their new responsibilities and perform their share in the implementation of projects. Farmers, for instance will be engaged in wheat and rice growing in new irrigation scheme areas, in cotton growing, tobacco farming, new fishery schemes, cattle ranches etc. Literate and trained workers are required in old expanding and new factories and other enterprises in mining, textile, agricultural industries etc.

At the same time, small industries demand better qualified owners and workers for the production of larger quantities and improved qualities.

Expanding traffic and transportation services requires better qualified drivers. Public service as well as private business is also in need of better educated and trained personnel, low level as well as high

level manpower.

The following data, taken from the National Plan [6] show the employment situation, and most interesting the need for additional manpower.

Table 3

Estimated wage employment, 1970

	Employment	Large & Medium Scale	Small scale estab.
Agriculture	168,000		
Non-Agriculture	1,217,000	765,000	622,000
T o t a l	1,217,000	1,385,000	

In terms of categories the situation and additional need is pictured below :

Table 4

Estimated Employment, Medium and Large Scale Establishments, 1970-1974

Occupation Group	Estimated employment		Addition employment req.	
	1970	1974	1970-1974	
1. Senior Staff	45,654	58,861	13,207	University graduates and senior staff
2. Intermediate Category	126,879	159,257	32,378	Tech. Assistants, Technician etc., Junior Staff
3. Skilled Category	217,304	289,433	72,109	Drivers, Operators, carpenters etc.
4. Residual category	375,163	477,469	102,306	Office employees, unskilled workers
Total	765,000	985,000	220,000	

It is worthwhile noting that there are many ways to get illiterate workers trained, voluntarily or in-voluntarily. In Nigeria for example, some responsible quarters have expressed the intention of making literacy a equisite for certain jobs, for drivers, office messengers etc. In this field much can be learned from the experience and achievements of other countries because not less than 28 countries have resorted to the use of law and or statutory provisions to boost their literacy education, adult education in general.[8)]

At the end it should be remembered that the aim of work-oriented functional literacy is not only to provide literacy abilities and vocational skills, but as mentioned, also receptiveness to change of behaviour and attitudes, and readiness to apply new ideas and techniques. Findings have shown that literacy abilities alone can not meet the requirements for progress. Briefly speaking, the acquired appropriate knowledge and skills

must be accompanied and strengthened by improved habits of work. In trade unions and enterprises mutual understanding and communication, and employer-employee relationship can be of vital importance. In rural projects mutual understanding and confidence between the rural people and executors and supervisors of the projects usually determine success or failure.

APPLICATION OF FUNCTIONAL LITERACY
(How to make literacy functional)

Traditional mass literacy, it has been said, is not so useful, does not serve practical purposes. The content of its teaching materials is not related to the adult learners needs and interest, and therefore, negatively, effects the motivation and learning interest of the adults. As it aims at mass production in the shortest possible time, the course is very short (30 to 50 teaching hours), and the teaching is not intensive. It often leads to a high rate of drop-outs and or relapse into illiteracy.

Functional literacy, in order to provide a useful and more retainable knowledge and skills, logically, should be geared to the felt needs and interest of the learners, of the community, the nation as a whole. The course should be of a longer duration (100 to 300 teaching hours), and the teaching of

the community-oriented or development oriented educational materials should be more intensive.

Community or national priority of needs differs from country to country. In cases where national unity and or social justice and security must be given higher priority, national governments may resort to socio-political or socio-cultural literacy campaigns. At the same time, to meet pressing need for improvement of the living standard of their poor masses, they can launch economically or development-oriented literacy, which is now termed work-oriented literacy for selected occupational groups in viable areas.

As regards contents, traditional mass literacy is "content-empty" or themselves The successive lessons form separate and loose units, and the language used need not be taken from the adults "known", and from a vocabulary they need to learn. For these reasons traditional mass literacy Primers can be written by every interested writer.

Needless to say that functional literacy Primers, which should fulfill certain requirements and standard with regard to the needs and interest of the learners, their level of knowledge and experience, their intellectual abilities and vocabulary.

As regards language, it is commonly accepted that learning in the mother tongue is, psycho-methodologically, easier than in a foreign language, hence it is recommended to teach literacy in a mother tongue, particularly in a country where there is no one national language yet. Further, it should be noted that in some countries or regions, due to a change of script, there are groups who are officially regarded illiterate although they know another script, for instance Arabic script, and as such, actually, can read books and are exposed to a rich literary world. These "functionally" illiterate people have also to learn the new script. The question now

remains: how to apply the functional literacy concept?

Before indicating some lines and actions which might be followed, it is worthwhile to know the difference between the three concepts, particularly with regard to the composition of the content of their Primers. The following tables of content and examples of lessons may give a clear picture, though an outwardly comparison.

Table 5

Content of a traditional Primer [9]

(first printed in 1950)

1. Father (containing only one word BABA)
2. Hen
3. Shoe (BATA)
4. Dog
5. Child
6. Snake
7. Butterfly
8. Fan
9. Bell
10. Bird
11. Wheel
12. Wife
13. Hawk
14. Goat
15. Snail
16. Letter

First lesson:

baba ba ba a b

b a b a b b a a

ba aba baba

aba baba

a ba baba

a ba a

baba ba a

ba baba ba a

a ba a ba baba

a ba baba ba a

Table 6

Content of a socio-cultural Primer[10)]

(first produced in 1970)

1. Stalk
2. War
3. Flag
4. Bucket (metal bath)
5. Leopard
6. Thatched entrance
7. Bandicoot (animal)
8. Farming
9. Sickle
10. Grass
11. (Lesson introducing compounds)
12. Letter
13. Health is the mother of the body
14. Cleaning the house
15. Fight ignorance for improving occupation
16. Traffic regulations
17. The work of police
18. Community development work
19. Use of co-operative society.

First lesson (in Hausa) :

Kara

ka ra

raka kaka rara ara

rak ar raka'a raraka

Note: According to the guide provided, analysis should be taught as follows:

k a r a

k a r a

k a r

k a

k a r

k a

k k

Table 7

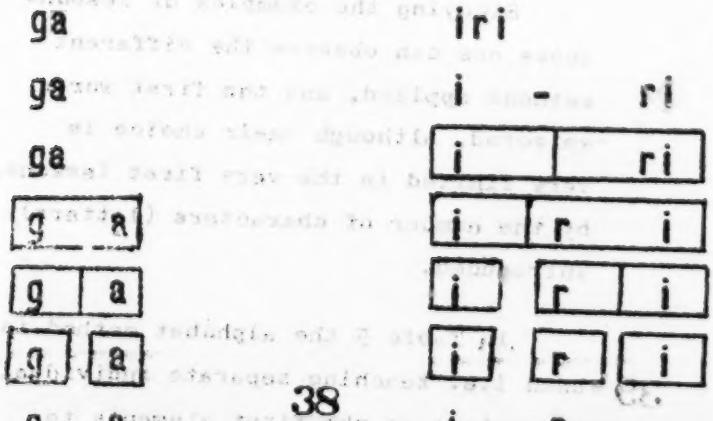
Content of a work-oriented Primer[11)]

(First introduced in 1972)

1. This is seed.
2. cotton
3. This is a farm.
4. weeding grasses
5. wait for rains
6. Put animal manure or fertilizer.
7. Begin ridging the farm.
8. Prevent loss of water by making cross ties.
9. Plant recommended cotton seeds.
10. The seed germinates well.
11. Clean the furrows.
12. Following advice doubles the profit.
13. Letter writing.

First lesson (in Hausa):

ga iri



ga ri

ga - ri ri - ga

a

a - ri

Ga riga.

Ga gari.

Iri a gari.

A ari iri.

Ga riga a gari.

Studying the examples of lessons above one can observe the different methods applied, and the first words selected, although their choice is very limited in the very first lessons, by the number of characters (letters) introduced.

In Table 5 the alphabet method is used i.e. teaching separate individual characters as the first elements to start with.

In Table 6 the key-word method is used, introducing a commonly known word (KARA) to be analysed (broken down) into its component elements (characters), starting from the end of the word.

In Table 7 the phrase method is applied, which presents a phrase (GA IRI : It's seed), a meaningful though-unit, to be analysed into syllables which have to be recognized and learned properly before going on to the breaking down of every syllable into its elements.

As Yoruba and Hausa, as most African and Asian languages, are syllabic languages, linguistically and methodologically, it may be argued that the third method is the appropriate one to be adopted.

How then to apply the functional literacy concept to meet only above mentioned requirements, because it should be admitted that there are other requirements if the concept is to be applied purely and fully scientifically.

First of all let us indicate how existing traditional mass literacy can be transformed or improved by bringing it in line with the functional concept and approach.

1. The best thing is, of course, to replace the old (out-dated) Primer with another, completely new functional one.

2. If the old one need not be totally "thrown away", because some parts of it, beside their historical value, have proved to be suitable and acceptable in the course of many years, a thorough revision may be sufficient to make it functional. This step has been taken, for instance by the Northern States of Nigeria. Some parts of the traditional Primer have been utilized, and the same method has been used in the new socio-cultural Primer.

3. As many countries are not in the position to publish a totally new or even a revised Primer, mainly due to shortage of money or lack of awareness, the old non-functional Primer must still be used. In this emergency case the following steps can be taken :

(1) Adding to the enforced Primer a second book, which can fulfill, though to a certain extent, the requirements and objectives of the course, civic or socio-cultural objectives or whatever education is decided upon. It may contain subjects or problems on hygiene, health, government, civic rights and responsibilities, art and culture, etc. and religion for specialized groups. If the added materials can not be produced in the form of a complete book, they can be distributed in parts, in the form of sheets, gradually and according to need

and progress, to be bound together in the end.

This book must be obligatory, and finished before final tests, if any, are administered for evaluation purposes or the award of certificates.

(2) In greater emergency situations which cannot afford the publication of mentioned minimum additional materials, the content and the teaching of the traditional Primer can be enriched by the introduction of the desired subjects and problems to be solved, through stories, discussions, and additional notes in handwriting at the proper stage. Further, events and problems arising during the course, such as change of traffic, currency, epidemic outburst etc. can be included in the teaching content. If visual aids are available, posters, drawings, graphic pre-

sentations etc. maximum use of them is recommended. In addition, usually ministries of information, health and others publish posters and pamphlets which, through mutual understanding and active co-operation, can be adapted to the capacity of semi- or neo-literate readers, thus making them more useful and efficient.

In both situations, additional material and care should be given to arithmetic, which should be related to daily needs and existing problems in order to be functional. Automatically, the duration of the course must be lengthened, and as far as possible, the literacy teachers should be acquainted with the change and its consequent requirements.

How to apply the functional concept in socio-cultural materials and courses?

For the sake of brevity, the work can be divided into three stages: preparation,

execution and evaluation. In view of the objective of this booklet, emphasis will be laid on the first stage.

Preparation :

1. Selection by the policy-making authorities of the kind of education to be given. It may be health education, political-civic education, socio-cultural education, family planning, spiritual-religious education etc. For farmers especially, co-operative education, for general workers, trade unionism may be suitable. If the country has a national development plan, it can be derived from it.

2. Selection of the central theme(s) of the education decided upon, and definition of objectives. In political education for instance, the central theme is democracy, its concept, meaning and implementation, presented in subjects and problems on democratic government, civic rights and duties, election etc. The objective

may be to impart political awareness, stability and national unity.

In co-operative education for farmers: the need for, the organisation and working of co-operatives, officers and members rights and duties, meeting procedures, loan facilities may form the components of the central theme. In trade unionism education the theme may centre around organization, rights and duties of members and office-bearers, employer-employee relationship etc.

3. Collection of information, data and materials on the theme and its subjects selected, needed for the setting of targets, curriculum programming and writing of the required teaching materials.

4. Publicity and motivation, and soliciting support from organizations, government and non-government agencies, influential groups and leaders.

5. Writing of the Primer and following book(s) including a separate arith-

metic book, if necessary.

6. Registration and selection of prospective learners (name, sex, age, educational level, main occupation etc.).

7. Recruitment and training of teachers.

It is clear that many of the activities listed, cannot be performed by the staff of one ministry, for instance education ministry alone. The co-operation and participation of other ministries, such as information and those directly concerned with the selected education and its central theme(s), for instance labour ministry in trade unionism education, is essential. Particular stress on this co-operation and participation should be given with regard to the writing of the materials. A writing team consisting of at least one experienced adult educationist, one subject specialist and one language specialist is certainly required.

Work-oriented literacy which includes the teaching of technical knowledge and vo-

cational skills, needed by the selected vocational group, has higher requirements and poses more complex activities. It integrates literacy teaching and vocational training.

The selection of economic sector and vocational group in it, need careful consideration as to its role and importance in the national economy and development of the country, the size of the group and its potentialities. Further, the scope of illiteracy among its members and the degree of impact of this illiteracy on efficiency and production. Surveys may be required, also for the selection of areas or centres of operation to know the needs and interest of the group, the situation and viability of the environment.

In the selected areas and centres the prospective learners should also be "screened" after publicity and motivation has been carried out. It should be remembered that one of the characteristics of work-oriented literacy is "selectivity". Not every vocat-

ional group, not every area, not every farmer or worker can be accepted, as in the case of mass literacy campaigns.

In a factory, for instance with 10 to 25 different trades, workers have to be selected carefully in order to form "homogeniuus" classes.

The selection of technical knowledge and vocational skills to be taught and trained requires expert's knowledge and experience because it is not the idea to teach for instance wheat farming from a. to z. Most of the farmers have been engaged in wheat growing for many years, have a great deal of knowledge and a wide experience. What they need is only improvement of their shortcomings and learning additional and new knowledge and skills, for example in the use of fertilizers, application of new techniques etc. and some related problems of hygiene, marketing and co-operative, if necessary.

In the field of industrial training, those activities are usually performed by an industrial psychologist and or industrial training specialist.

The writing of "Primer" (Book I) and subsequent occupation or job-oriented books, therefore, can also be done only by an inter-disciplinary team. The integration of the three components (literacy, technical knowledge and skills, related socio-economic matters) requires special knowledge and experience. For all mentioned reasons and requirements, it is therefore not surprising that in a Unesco macro or pilot work-oriented project we have a number of international experts, working with a larger number of national specialist and staff.

In brief, it may be said that a work-oriented literacy project can be prepared, implemented and evaluated only by inter-departmental co-operation and participation, with the assistance of international experts, if necessary, particularly in the initial stages, and because of the fact that this concept is

very new and has been tried in practice only since 1967. The training of the selected skills should be done, at least assisted, by vocationally qualified instructors, preferably, of the same vocational group, for example by extension workers or able farmers in agriculture, and instructors, technicians or foremen in a factory. To know how to teach literacy (reading, writing and arithmetic) they need to be acquainted with or trained in it. If the literacy and technical components must be taught by a non-technical teacher, then he must be trained in order to be able to act as a teacher-technician. He must be equipped with a detailed instructor's guide or manual on how and what to teach in practical work, demonstration lessons and fieldwork.

As regards the production of literacy books, it has been noted that in many countries the old traditional Primer is still being used, although there is awareness of the need for revising or replacing it and that relapse of neo-literates into

illiteracy is high because of the shortage or absence of follow-up reading materials. In both cases the primary cause is lack of money for the production of the necessary books. It is true, in many developing countries not only production cost is very high but there is often also frequent shortage of printing paper and ink.

A cheaper and practical way must be looked for.

In the case of the Northern States of Nigeria where four projects have been launched, the seemingly unsurmountable obstacle has been eliminated by the use of a bold-faced typewriter and a scanning machine (stencil cutter) which can pick up illustrations, which are available for use in the Institute of African Adult Education in the University of Ibadan. Some States have purchased or ordered them which are also very useful for the production of post-literacy materials such as new letters, bulletin, pamphlets. etc.

Production can be carried out at any time convenient, in the quantity required, and in quite a cheap way. For immediate practical purposes it may be worthwhile to quote here the cost of the production of, let us say, 1000 copies of a book of 40 pages :-

Duplicating paper: 1000 x 40 - 20,000 40 reams of 16/-	£ 32. 0. 0.
Stencil ink : 2 tubes of £1.5/-	2.10. -
Scanning sheets: 40 x 5/-	10.10. -
Cover, cardboard: 2000 leaves	15.10. 0
	£ 60. 0. 0
Labour (collating and stitching)	15. 0. 0
	£-75. 0. 0

For some readers it may be also interesting to know that the price of a bold-faced typewriter and scanning machine is about £120 and £500 respectively.

TRAINING OF ILLITERATE FARMERS AND WORKERS

First of all it should be kept in mind that functional literacy, particularly work-oriented literacy concerns the education of the whole personality of the learners. Special characteristics of adults should be taken into account in the preparation of the educational materials, in the teaching of these materials and in teacher-learner relationship.

Without going into the psychology and pedagogy of the adult, it suffices to note a few general characteristics in relation to learning.

1. Illiterate adults are influenced by their age which breeds conservatism. This, in turn, makes them cling to habitual patterns of behaviour and more reluctant to change.

2. Illiterate adults must have a strong motivation. They want not only to be informed about what the literacy

teaching (attending classes) will lead to, what the benefit is etc.

but also to be convinced of the possibility of reaching the declared objectives. The objective to know more or to get social prestige may not be sufficient. Consequently, their desire may wane, their interest cannot be maintained. Farmers must be convinced, for instance that they will be able to reap better yields, and workers must see clearly that literacy will bring better wage and or chance for promotion.

3. Illiterate adults, the more those living in very simple societies, cannot understand images. They cannot "read" graphic representations, drawings, symbols etc. They cannot conceive abstraction.

4. Illiterate adults have no understanding of physical phenomena, such as natural events and processes; rain, disaster, causes of diseases, elect-

ric current, mechanical working of machines etc.

5. Illiterate adults have no precise notion of time and distance. They are used to measuring everything by approximation and comparison.

All these traits will influence their learning and activities greatly. We should be warned that they attend classes voluntarily, and will leave them if they do not see any further benefit in it, or if they feel that the lessons are not related to their needs and environment, or if these are too difficult, or if they experience that they are treated in an "un-adult" manner, or if the teaching time is not suitable to them e.g. if this interferes or obstructs their daily work or means of living.

The training of illiterate farmers so far has been carried out through mass education, particularly by extension workers, by words from mouth to mouth only, and in the case of skills by showing how to do them. No doubt that this method can reap some result. Only it is very restrictive. They

can pick up and learn only that what they can retain by memory. They can remember and carry out only those skills or activities which do not require arithmetic calculations or precise measurements of time, length, volume and value. It is still harder if they must learn new knowledge and unknown techniques.

This all is not surprising because even literate and intellectuals have to make written notes and drawings or to read relevant books, during or after their study or training.

The question now is how to improve those shortcomings of the illiterates and how to impart the required new knowledge and skills to them. Just to repeat what has been mentioned above, how to adapt the course to their personal abilities and adult characteristics and most suitable time?

Work-oriented literacy, based on the collected data and materials, and

the result of surveys made, should be able to fulfill the requirements, among other things by integrating the components in the teaching materials, and adapting the teaching time to the agricultural cycle in the area, and also by taking into account mentioned characteristics of the illiterate adults. Theoretical lessons in the class must be preceded or followed up by demonstrations and or practical work in the field. (on the spot or in the factory in the case of workers).

Drawings, illustrations and other visual aids should be used to teach them to understand images; models and simple explanations and showing of physical phenomena, for example why plants need sunshine and water, should be provided; measurements of time, length, volume etc. should be shown and taught, which are needed, for example in irrigation, planting of seedlings according to the required distances, mixing fertilizers etc.

There are, of course, many and various methods and programmes which can be applied.

No one methed is of universal character which can be used at all times and in all places. Work-oriented literacy is still at its experimental stage. Every project, carried out by Unesco and its member-state is planning and trying its own method and materials. An example, an easy and practical one as suited to and practised in the wheat farming project in the Lake Chad area of Nigeria, is given below picturing the method of integration of language, technical knowledge and skills, and adapting lessons to agricultural activities and farming cycle.

Table 8

Outline of lessons, fortnightly

Wheat Growing.

Time/Activities	Lesson Content	No. of Lesson Key-phrases *)
SEPTEMBER		
I. 3rd-4th week First discing, carried by Agric Staff.	Clearing of land, first discing. (Introductory)	1. ga dawa 2. da masara 3. fure ne 4. ciyawa a juji 5. taki a bubu 6. lemo ya zuba
OCTOBER		
I. 1st-2nd week 1. Cutting grass 2. Burning grass 3. Preparation of channels, cleaning and repair.	Clearing of land, 1st and 2nd discing. 1. Emphasizing need, impertance of grass cutting and burning. 2. Removing grass from channels. 3. Repair of channels: broken parts, grading depth.	7. shuka ta tsiro 8. kwari da gwazarma suna buya a juji. 9. an hada hanyar ruwa mai kyau a Potiskum

III.	3rd-4th week	Discing and preparation of channels		
	Clearing and repair of channels.	Repair of channels (contd.)	10,	an gyara hanyar ruwa da kasa

NOVEMBER

etc. etc.

x) Literally translated into English, the key-phrases (titles of the lessons) are :

1. It's guinea corn.
2. It's maize.
3. It's flower.
4. Grasses on rubbish heap.
5. Fertilizer in a bag.
6. Oranges have fallen.
7. Plant has germinated.
8. Insects and grabs hiding rubbish heap.
9. A good channel has been completed in Potiskum
10. Water channel has been prepared with earth.

Further:

11. Seed dressing.
12. Materials for seed dressing.
13. Ways of seed dressing.
14. Bunting soil.
15. Fertilizers
16. How to use fertilizers
17. Methods of sowing seeds.
18. First irrigation.

How to introduce literacy in existing agricultural educational activities?

There are various forms of how to educate illiterate farmers : giving oral information, by word of mouth through speeches/lectures, by radio broadcast; providing information and showing practice by mass or group meetings ("open-air classes"); organized training, residential or non-residential for a short period.

If the lectures or extension services meetings are not given accidentally, in other words if in these cases, regular meetings can be organized literacy teaching can be inserted, forming just a complementary educational activity to support learning. The method used need not be the usual class method, and the materials need not have the form of complete books, but for instance stenciled sheets for each meeting. The words and topics or problems are to be derived from the information given and discussions held, after which the teaching of the selected generative words starts. In this way the illiterate adults learn what they are familiar with (in general

terms called starting from the "known to the un-known", what they need and are interested in, what they will use immediately and in further practice, what they feel they have chosen themselves (in fact chosen by the instructor, who has also prepared the necessary illustrations, pictures or posters). Farmers who live together in farming settlements or work in brigades are in a better position to benefit from this inserted literacy course. The same method and activity can be employed for farmers who are members of a co-operative society, and thus may come to regular meetings.

Such lessons can be supported by radio broadcast, if community radio-diffusion centres or personal transistors are available, or by literacy insert in local newspapers.

The training of illiterate workers has two vital aspects: imparting technical knowledge and vocational skills, and changing working habits and attitudes. General literacy teaching is often provi-

ded by trade unions and or their employers, as a social service, which makes workers literate but not necessarily eligible for wage or job promotion.

As mentioned earlier industrial enterprises, for example big factories, usually, have a number of trades which workers can enter through defined tests. There may be an opportunity kept open for illiterates to reach the lowest trade in order not to bar them at all during their whole life from any chance for promotion. The training is usually conducted by group foremen, but this type of occasional training on the job may take a long time and much strain, and may require a lot of patience from the illiterates. Those who have high aspirations or think that they have more knowledge and skills than they really posess, may become impatient and or frustrated.

Well-organized enterprises, normally, have a special training section, such as the Western Africa Portland Cement Factory near Abeokuta in Nigeria. It has about 18 trades (vocational groups), and conducts trade tests

deviced to standards which would satisfy a Trade Testing Officer of the Federal Ministry of Labour or such other trade test requirement that may become legally recognized. There are three classes. Candidates for the lowest class, Class III should normally have had a total of three years experience in their trade. A few examples may give an impression of the content and grade required: [12]

Class III - auto electrician

Every candidate must:

1. be able to use and read a rule to 1/64th of an inch, read and use a micrometer.
2. be able to use and maintain in good condition the tools in common use in the trade and be able to make from a sketch, some simple part in sheet metal, paxolin or tufnol, etc., involving the use of B.A. or other small taps and dies, callipers and dividers, etc.
3. be capable of soldering and sweating

joints and cables including battery leads.

4. know Ohm's Law and be able to calculate fuse and cable requirements.
5. have a knowledge of A.C. and D.C. and how produced, the use of a megger, voltmeter, ammeter and ohmeter.
6. have a knowledge of cables common to vehicles and be able to trace circuit breaks and reconnect.
7. be able to clean and re-set contact breaker points and be able to trace L.T. and H.T. defects in an ignition circuit.
8. be able to test voltage and specific gravity of a battery, dilute sulphuric acid, and charge a battery on a mains charging board or petrol driven charging plant, connecting in series or parallel.
9. be able service generators, starters and wiper motors, check and adjust alignment of headlamps, repair horns, trafficators and switches as applicable.
10. be able to carry out ignition timing of 4, 6, and 8 cylinder engines.
11. understand the working of the ignition coil, voltage regulator and cut-out.

12. be able to use and understand a feeler gauge.

Class III - mason

Every candidate must :

1. be able to use and read a rule to 1/16th of an inch.
2. be able to use and maintain in good condition the tools in common use in the trade and correctly name them.
3. be able to prepare cement and concrete for general building, plastering, and the manufacture of blocks, and know the necessary proportions.
4. be able to build straight walls including a right angle, of ten courses, to a given common bond, using level, rule, steel square and plumb bob, and construct a setting out square.
5. have a simple knowledge of brick and block terminology.
6. be able to plaster and render walls, level for concrete and finish off concrete floors.
7. be able to lay paving slabs.
8. be able, under supervision, to pre-cast, cast in situ and place such things as lintels, sills and cover slabs.
9. be able to identify the various types of refractory bricks and materials

> used on the works, cut and shape, by bolster, scutch and machine, bricks for supply to seller, undertake simple brick setting and assist in the setting up of brick jacks and struts.

The factory is conducting literacy classes of the non-work-oriented type. It is willing to organize work-oriented courses but due to lack of qualified personnel who can act as literacy teacher cum vocational trainer, and inability to prepare and write the necessary teaching materials, they have not been introduced yet.

In Liberia, Lamco(a copper mining company) has provided that the lowest grade in some trades can be attained by industrious illiterate workers after a certain period of organized and regular training by foremen. The test does not require literacy abilities. Nevertheless, the factory with government assistance, conducts functional literacy courses to help the average worker, and thus accelerate his progress.

The preparation of work-oriented literacy programme for industrial workers is more

or less the same as that for farmers. However, as the former have a more detailed trade, and face a test of certain standard, consisting of theoretical and practical work, a more defined preparation is required. Once the general objective is defined (increased production, fuller participation in daily activities, improvement in standard of living, change in outlook and behaviour etc.), the problems in attaining the objective needed for the adaptation of the educational programme to the environment, needs and interest of the selected vocational group, the technical objectives e.g. improvement of operations, can be translated into training objectives : technical and vocational skills, ability to communicate, knowledge, working habits and attitudes. The study of the environment and the collection of materials for the teaching materials can be made by various techniques of investigation, such as direct observation, questionnaire, interviewing and group discussion. The necessary work analysis needs to be per-

formed with technicians, representative samplings of the persons to be trained, in consultation with the trade unions and the employers' organizations.

In this way the information and materials for the preparation and writing of the appropriate teaching materials are collected: list of commonly used words, vocabulary, list of tools and skills, shortcomings of the prospective learners, working cycle etc. The teaching materials can be prepared completely, dividing up their contents into monthly, weekly and daily sessions, if possible. Or they can be produced in a progressive way, prepared in stages by dividing up the subject-matter in sequences, designed to last a week and to fit in with the day-to-day activities of the vocational group. The produced lessons or sheets etc. can be assembled later and reproduced in the numbers required.

The materials, as far as possible, should be pre-tested, and improved during the course. The project in Mali for workers in a matches factory, after having conducted a survey of

the production process, study of the different operations and analysis of the tasks involved, identification and formulation of training requirements, constructs a syllabus phase 1, sequence No.1 as follows :[13)]

1. Job training

   Cross-cutting: correct placing of the gauge; function of the power saw; main feature of the sections sawn by the power saw; adjusting of the three standard lengths; demonstration and practical applications.

2. Industrial safety and hygiene

   Precautions to be taken when working close to the saw blade; cuts; first-aid in case of cuts.

3. Socio-economic training

   Mali is not a timber producing country; most of the timber used at SOMATAM has to be imported.

4. Job-oriented arithmetic

   Counting the number of sections sawn from a tree trunk: 1- 2- 3- 4.

5. Reading

   Key-phrase: "la scie mecanique" (power saw),

   mecanique

71 me ca a ni i n que

6. Writing

Copying and dictating letters: i a a
Copying and dictating syllables: ni na

7. Spoken language

Theme: "the power saw".
Listening - Repeating: What is this machine called?

Answer:

What is the function of the power saw?

Answer:

Elocution: The power saw (the machine) saws sections of wood.

8. Posters used.

The work-oriented adult literacy pilot project, Dezful in Iran gives the following example : [14]

Outline of programme for 1970/71
1st STEP, Subject:

LIVESTOCK, sequence 1:
Subject centre : alfafa

Sub-Topic		
a. Value and importance of alfafa.	SCIE.:	Bacterias of roots
b. Comparison between alfafa and other fodder crops.	S.E. :	Value of alfafa
c. Why we should grow alfafa.	DRAW.:	Square
	CALC.:	Weight, length and surface units.

Sequence 2:

a. Land preparation	SCIE.:	Aeration of soil
b. Suitable variety, rate of seeds.	S.E.	The cost of planting
c. Planting.	DRAW.:	Rectangle
d. Irrigation	CALC.:	Measuring the surface of a square, of a rectangle. Numbers to 100. Simple addition and multiplication.

J.P. Rykmans in 1968, citing the experiences of a French engineer, who has been engaged for years in the training of

workers in under-developed countries, wrote:

"The solution usually adopted is to give illiterates a technical training without literacy. But this solution has obvious limits, and allows only for a restricted training. It does not open the door to further technical progress and promotion.

The common answer is to teach illiterates to read and write first, before any technical training. The advantage of this method is that it permits the use of training methods similar to those in use in industrial countries. Results, however, are not encouraging, Few literates go on to technical training ....

We have tried to give literacy the same favourable conditions (as technical training) and therefore the same motivation. The method used is not to dissociate literacy training and technical training; the results seem interesting.

The teaching method adopted is the following :

(a) observation of reality (OR)
(b) observation of model which simplifies and symbolises reality (OM)

(c) discussion on drawings and general principles (DD)
(d) execution on the model, giving a first application of the principles (EM)
(e) application in reality (AR).

This from reality to reality, going up to abstraction through a model and down again through model to application in real life ...." 15)

It is clear that general literacy classes can be held in the afternoon or evening outside a factory but work-oriented literacy, for the teaching or demonstration of implements and skills, should be conducted on spot, in the workers working place (training on the job) or at the factory site.

Factories and other industrial or commercial enterprises can pay the cost of such work-oriented literacy, on a voluntary or statutory basis. Its introduction, therefore, depends totally on the readiness of the managements concerned, on the awareness of the trade unions and their members, and finally on the guidance and leadership of the government.

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